WHAT IS CLAIMED IS:

1. A laser power grid, comprising:

a first plurality of continuous-work (cw) laser sources, for generating a first plurality of light propagations, each light propagation being distinct by its wavelength;

a laser distribution grid, formed as at least one optical fiber, optically coupled to said first plurality of laser sources, for transmitting said first plurality of light propagations; and

a second plurality of optical-switch arrays, each array comprising at least one optical switch, coupled to said laser distribution grid, and adapted for deflecting a single one of said light propagations of a distinct wavelength, responsive to an input signal.

2. The laser power grid of claim 1, wherein said laser distribution grid is formed as a plurality of optical fibers.

3. The laser power grid of claim 1, wherein said laser distribution grid is formed as a multi-mode fiber.

4. The laser power grid of claim 1, wherein said laser distribution grid is formed as a single-mode fiber.

5. The laser power grid of claim 1, wherein said at least one optical switch is an electroholographic switch.

6. The laser power grid of claim 5, wherein said at least one optical switch is operative by electric field multiplexing (EFM).

7. The laser power grid of claim 1, wherein said optical-switch array includes a plurality of optical switches, equal to said first plurality of light propagations, each optical switch being optically coupled to said laser distribution grid, and each optical switch being adapted for deflecting a single one of said light propagations of said distinct wavelength, responsive to said input signal.

8. The laser power grid of claim 7, wherein said a laser distribution grid is formed as one optical fiber, which is coupled to said first plurality of optical switches, with an optical wavelength demultiplexer upstream of said optical-switch array and an optical coupler downstream of said optical-switch array.

9. The laser power grid of claim 8, comprising an optical coupler for coupling optical fibers along the deflected course of the light propagation.

10. The laser power grid of claim 1, wherein said each optical switch is adapted to deflect a predetermined portion of said single light propagation of said distinct wavelength.

11. The laser power grid of claim 1, wherein said laser sources are fixed-wavelength laser sources.

12. The laser power grid of claim 1, wherein said laser sources are tunable laser sources.

13. A data network, comprising:

a laser power grid, which comprises:

a first plurality of continuous-work (cw) laser sources, for generating a first plurality of light propagations, each light propagation being distinct by its wavelength;

a laser distribution grid, formed as at least one optical fiber, optically coupled to said first plurality of laser sources, for transmitting said first plurality of light propagations; and

a second plurality of optical-switch arrays, each array comprising at least one optical switch, coupled to said laser distribution grid, and adapted for deflecting a single one of said light propagations of a distinct wavelength, responsive to an input signal;

a second plurality of PEs, each electronically coupled to one of said second plurality of optical-switch arrays, for providing said input signal, for deflecting said single light propagation of said distinct wavelength; and

a second plurality of optical modulators, each electronically coupled to one of said second plurality of PEs and optically coupled to said one of said optical-switch arrays, associated with said PE, for modulating said single light propagation of said distinct wavelength, responsive to an electronic information of said PE, for forming an optical data packet of a distinct wavelength for transmission, associated with said PE.

14. The data network of claim 13, adapted for single-wavelength data transmission.

15. The data network of claim 13, comprising an optical coupler, for receiving data packets from said modulators and for coupling said data packets to an optical fiber, for wavelength division multiplexing (WDM).

16. The data network of claim 15, wherein said WDM is a coarse wavelength division multiplexing (CWDM).

17. The data network of claim 15, wherein said WDM is a dense wavelength division multiplexing (DWDM).

18. The data network of claim 15, comprising a demultiplexer, optically coupled to said optical fiber for decoupling said data packets, in accordance with their wavelengths.

19. The data network of claim 18, comprising wavelength addressing, wherein each of said optical data packets is routed to a receiving PE, as determined by said distinct wavelength of said optical data packet.

20. The data network of claim 19, wherein any one of said second plurality of PEs may be assigned a wavelength address and may act as said receiving PE.

21. The data network of claim 20, wherein said second plurality is less than or equal to said first plurality, and each of said second plurality of PEs is assigned a wavelength address.

22. The data network of claim 13, wherein said second plurality of PEs is arranged in a U plurality clusters, for a multi-cluster design, comprising:

a second plurality of routing switches, each electronically coupled to one of said second plurality of PEs, for receiving an input signal therefrom, and each optically coupled to an output of one of said second plurality of optical modulators, for routing data packets issuing from said optical modulators to a U^2 plurality of output optical couplers, responsive to said input signals from said PEs; each of said U^2 plurality of output optical couplers being designated by an output cluster and an input cluster, and

a U plurality of input optical couplers, for coupling data packets arriving in said U^2 plurality of output optical couplers to a U plurality of optical fibers, each designated by an input cluster.

23. The data network of claim 22, comprising a U plurality of demultiplexers, each optically coupled to one of said U plurality of optical fibers, for decoupling said data packets, in accordance with their wavelengths.

24. The data network of claim 22, wherein said second plurality is less than or equal to said first plurality times said U, and each of said second plurality of PEs is assigned an address by wavelength and cluster.

25. The data network of claim 22, wherein said U plurality of clusters is distributed among different locations.

26. The data network of claim 13, wherein said second plurality of PEs is distributed among a Q plurality of locations, comprising:

a Q plurality of output optical couplers, for coupling a plurality of data packets to be transmitted from each location to a Q plurality of output optical fibers;

a central optical coupler, for coupling said Q plurality of output optical fibers to a single, central fiber;

a demultiplexer, optically coupled to said single, central fiber, for decoupling said data packets, in accordance with their wavelengths.

27. The data network of claim 26, comprising a Q plurality of input optical couplers, for coupling a plurality of data packets heading to said Q plurality of locations, into a Q plurality of input optical fibers, each leading to one location, the coupling being based on wavelength addresses of PEs in each location.

28. The data network of claim 27, comprising a Q plurality of input demultiplexers, each optically coupled to one of said input optical fibers, for decoupling said data packets, in accordance with their wavelengths.

29. The data network of claim 13, wherein said laser distribution grid is formed as a plurality of optical fibers.

30. The data network of claim 13, wherein said laser distribution grid is formed as a multi-mode fiber.

31. The data network of claim 13, wherein said laser distribution grid is formed as a single-mode fiber.

32. The laser power grid of claim 13, wherein said at least one optical switch is an electroholographic switch.

33. The laser power grid of claim 32, wherein said at least one optical switch is operative by electric field multiplexing (EFM).

34. The laser power grid of claim 13, wherein said optical-switch array includes a plurality of optical switches, equal to said first plurality of light propagations, each optical switch being optically coupled to said laser distribution

grid, and each optical switch being adapted for deflecting a single one of said light propagations of said distinct wavelength, responsive to said input signal.

35. The laser power grid of claim 34, wherein said a laser distribution grid is formed as one optical fiber, which is coupled to said first plurality of optical switches, with an optical wavelength demultiplexer upstream of said optical-switch array and an optical coupler downstream of said optical-switch array.

36. The laser power grid of claim 35, comprising an optical coupler for coupling optical fibers along the deflected course of the light propagation.

37. The data network of claim 13, wherein said each optical switch is adapted to deflect a predetermined portion of said single light propagation of said distinct wavelength.

38. The laser power grid of claim 13, wherein said laser sources are fixed-wavelength laser sources.

39. The data network of claim 13, wherein said laser sources are tunable laser sources.

40. A method of WDM transmission, incorporating wavelength addressing between a plurality of PEs, distributed among Q locations, comprising:

at each location, coupling a plurality of data packets issuing from said location to a Q plurality of output optical fibers, each leading to a central location;

at said central location, coupling data packets arriving in said Q plurality of output optical fibers to a central optical fiber;

at said central location, optically demultiplexing, by wavelength, data packets issuing from said central optical fiber;

at said central location, coupling data packets which have been optically demultiplexed, by wavelength, to a Q plurality of input optical fibers, each leading to one of said Q locations, said coupling being based on wavelength addressing; and

at each locations, optically demultiplexing, by wavelength, data packets issuing from said input optical fibers, in accordance with their wavelengths.

41. A method of WDM transmission, incorporating wavelength addressing between a plurality of PEs, in a multi-cluster data network, of U clusters, comprising:

at each cluster, routing a plurality of data packets issuing from said cluster to a U^2 plurality of output optical couplers, each output optical coupler being designated by two variables: output an input clusters;

coupling said plurality of data packets routed to each coupler to a U^2 plurality of output optical fibers, associated with said U^2 plurality of optical couplers, each output optical fiber being designated by said two variables: output an input clusters;

coupling data packets arriving in said U^2 plurality of output optical fibers to a U plurality of input optical fibers, said coupling being done by wavelength addressing, each input optical fiber being designated by an input cluster, and each leading to the cluster of its designation;

at each cluster, optically demultiplexing, by wavelength, data packets issuing from said input optical fibers, in accordance with their wavelengths.

42. A method of data transmitting, comprising:

providing a laser power grid, which comprises:

a first plurality of continuous-work (cw) laser sources, for generating a first plurality of light propagations, each light propagation being distinct by its wavelength;

a laser distribution grid, formed as at least one optical fiber, optically coupled to said first plurality of laser sources, for transmitting said first plurality of light propagations; and

a second plurality of optical-switch arrays, each array comprising at least one optical switch, coupled to said laser distribution grid, and adapted for deflecting a single one of said light propagations of a distinct wavelength, responsive to an input signal;

electronically coupling a second plurality of PEs to said second plurality of optical-switch arrays, each PE being adapted to provide said input signal, for

deflecting said single light propagation of said distinct wavelength, associated with said each PE; and

modulating said single light propagation of said distinct wavelength, responsive to an electronic information of said each PE, for forming an optical data packet of a distinct wavelength for transmission, associated with said each PE.

43. A laser power grid, comprising:

a first plurality of continuous-work (cw) laser sources, for generating a first plurality of light propagations, each light propagation being distinct by its wavelength;

a laser distribution grid, formed as at least one optical fiber, optically coupled to said first plurality of laser sources, for transmitting said first plurality of light propagations; and

a second plurality of optical-switch arrays, each array comprising at least one optical switch, coupled to said laser distribution grid, and each array being adapted for deflecting a plurality of light propagations, responsive to an input signal.